3. CONCEPTUAL BIKEWAY ALTERNATIVES

Five conceptual alternatives were identified for detailed analysis as part of this Bikeway Study, based on initial field visits, preliminary environmental and engineering information, Technical Advisory Committee meetings, the public workshops on the North and South Shores, and discussions with agency staff. These alternatives included:

- Alternative 1: Off-Street Bikeway
- Alternative 2: On-Street Bikeway
- Alternative 3: Transit
- Alternative 4: Water Ferry
- Alternative 5: Scheduled Road Closure

For each of the conceptual bikeway alternatives, an appropriate "first cut" analysis was conducted. These analyses were not comprehensive, but instead intended to provide an overview of the alternative, to identify any "fatal flaws" with each alternative, and to note any further steps that would be necessary. The type of analysis was dependent upon the alternative; for example, Alternative 1 (off-street bikeway) focused on engineering and natural resource impacts, while Alternative 5 (road closure) focused on potential operational issues.

The conceptual alternatives discussed in this chapter are illustrated on the maps shown in **Figures 3-1, 3-2, 3-3, and 3-4** on the following pages.

ALTERNATIVE 1: OFF-STREET BIKEWAY

OVERVIEW OF ALTERNATIVE

The analysis of Alternative 1 was conducted to determine in what segments of the Cascade to Rubicon Bay corridor it could be possible to construct an off-street bike path. For purposes of the environmental analysis, it was assumed that an 8-foot wide paved bike path was being considered. It was assumed that the path would be routed near the shoreline (as opposed to following the highway), in order to provide a bike path alignment with minimal topographic change that could be ridden by casual recreational cyclists. In areas of the corridor where private homes abut the shoreline, it was assumed that the bikeway would utilize an on-street route. Within Emerald Bay and D.L. Bliss State Parks, the off-street bikeway route would roughly follow an existing hiking trail around the east side of Emerald Bay and the Rubicon Trail from Vikingsholm northward to Lester Beach. The general route of the off-street bikeway studied under Alternative 1 is shown on the Conceptual Alternatives maps.

ENVIRONMENTAL CONSIDERATIONS

The environmental analysis of Alternative 1 focused on the major issues associated with developing an off-street paved bike path through the undeveloped areas between Spring Creek Road and Meeks Bay. It should be noted that a detailed bike path alignment was not analyzed, nor were focused field surveys conducted. Rather, a general "corridor-level" analysis was conducted in order to identify the major impacts for each technical sub-area. The environmental topics evaluated for Alternative 1 included:

- Wildlife;
- Vegetation;
- Geology, Soils and Erosion;
- Cultural Resources; and
- Visual Quality

This section contains a summary of the major technical analysis conducted for each environmental topic. A copy of the full technical report for each topic is included in the appendix to this Bikeway Study.

WILDLIFE

Background

The TRPA Goals and Policies provide for maintenance of suitable wildlife habitats for all game and non-game indigenous species by maintaining and increasing habitat diversity. Habitats essential for threatened, endangered, or sensitive (TES) wildlife species must be preserved and enhanced. The Goals and Policies also reinforce the provisions of state and federal protection for TES wildlife species.

Aquatic habitats essential for growth, reproduction, and perpetuation of the fishery resource shall be improved by prohibiting actions that will degrade the resource and encourage actions to enhance it. Stream habitat is protected from physical alteration, such as artificial modification to stream channels, unless TRPA finds that such actions avoid significant adverse impacts to the fishery or are otherwise allowed under the Code.

Development proposals affecting streams, lakes and adjacent lands must evaluate impacts to the fishery. No project or activity shall be undertaken within the boundaries of a stream environment zone except as otherwise permitted for habitat improvement, dispersed recreation, vegetation management, or as provided in Chapter 20.

Stream environment zones adjoining creeks and major drainages that link islands of habitat and shall be managed, in part, for use by wildlife as movement corridors. Structures proposed within these

movement corridors shall be designed so they do not impede the movement of wildlife. Riparian vegetation shall be protected and managed for wildlife.

Potential Impacts

Bald eagle – TRPA species of special interest, USFS sensitive species, USFWS species of concern
The alignment through D.L. Bliss State Park is an area where it might not be possible to construct due to wildlife issues, specifically nesting raptors. A pair of bald eagles (*Haliaeetus leucocephalus*) nest in the Emerald Point area of D.L. Bliss State Park. This pair has successfully fledged young for the past few years. Mapped bald eagle Threshold habitat is located in the northeastern portion of Emerald Bay. Bald eagle management zone and winter habitat is mapped in the Baldwin Beach/Tallac Creek area. The trail alignment traverses to the west of the latter two mapped habitat types, it does not pass through the habitat types.

Osprey – TRPA species of special interest
Approximately fifteen pairs of ospreys (*Pandion haliaetus*) nest along Lake Tahoe's shore in Bliss State Park. The number of pairs successfully fledging young each year varies, but is typically only two to three. Ospreys typically begin their nesting activities in March when the park is still covered with snow. Once summer use of the park begins, the nesting ospreys are exposed to disturbances due to visitor use of the trail that parallels Lake Tahoe. Nest trees are not limiting, but the ospreys most likely place their nests in close proximity to this trail because no human use occurs during their nest building activity. The subsequent visitor use of the trails causes disturbance to the nesting ospreys that might account for recorded nest failures. The California State Park's wildlife biologist is conducting a study to assess the effects of recreation on the nesting ospreys in the park.

It is reasonably assumed by wildlife managers that if special status species nest in close proximity to existing development they have adapted to such conditions. (Exceptions can occur when species build nests during winter in areas of low human use, but these areas later receive high recreational use in summer.)

Birds are particularly vulnerable to disturbance when they are breeding. Adults might abandon eggs as well as early hatchlings, which can lead to total reproductive failure (White and Thurow 1985), and subsequent abandonment of the territory may occur (White and Thurow 1985). Recreational activity can cause nesting adults to fly off or alter their attentiveness, thus increasing the risk of the eggs or young being preyed upon, disrupting feeding patterns, or exposing the young to adverse environmental stress (Burger 1995; Hammitt and Cole 1998). Juveniles forced to fledge prematurely due to disturbances might be more vulnerable to weather and predators.

Impacts to wildlife and their habitat are typically less significant when new uses occur on existing trails and roads. However, even if the bike path follows the existing footpath, TRPA is likely to consider the bike path a new use. Thus, the project would be subject to the buffer zones (osprey: ¼ mile radius; bald eagle: ½ mile radius) around active nest sites and limited operating periods (LOPs) from March 15 to September 1. Implementation of these LOPs and buffer zones would prevent development and use of the bike trail during those times.

Pine Marten – USFS sensitive species

Pine martens (*Martes americana*) have been recorded in the forested portions of Bliss State Park (north of Emerald Point) north to the Meeks Bay Resort and Marina. No LOPs or buffer zones are required by TRPA for martens. However, the Sierra Nevada Framework (USFS) mandates a protected activity center (PAC) of 100 acres of the highest quality habitat surrounding den sites, arranged in as compact a unit as possible. A limited operating period around den sites applies from May 1 through July 31. No den sites are currently known.

Willow Flycatchers – California Threatened, USFWS species of concern, USFS sensitive species

No occupied habitat or willow flycatcher (nesting) territories are mapped in the project area, however potential habitat is present in wet meadows with a willow component and along riparian corridors. The LTBMU has delineated both suitable and emphasis habitat within the project area. Emphasis habitat is defined as meadows larger than 15 acres that have standing water on June 1 and a deciduous shrub component. These mapped habitat types are located in riparian habitat, such as Meeks Bay, Rubicon Creek, ephemeral unnamed drainages (e.g., Emerald Point), and Cascade Creek. Construction of trails in these mapped habitat types would be subject to TRPA limitations on development in stream environment zones. Prior to any development, protocol-level surveys for willow flycatchers would probably be required. If willow flycatchers are found, a LOP would be applied to a variable sized area around each nest from June 1 through August 31.

Summary

Areas where it might be possible to construct the off-street bikeway with minimal impacts include trail portions in and adjacent to urban areas such as the Lonely Gulch area. The species most likely to occur in and near these areas are those that are already adapted to human presence, activities, and noise (e.g., raccoons, coyotes, Stellar's jays). Sensitive species have been recorded near, but not within the urban areas (e.g., martens, ospreys). The lake shore alignment in D.L. Bliss State Park could be shifted west ¼ mile so that it was outside TRPA's osprey disturbance zone, and could be shifted ½ mile west of Emerald Point so that it was outside TRPA's nesting bald eagle zone. However doing so could potentially create conflicts with other wildlife issues, although they might be readily resolved. Potential issues include impacts on stream environment zones and mountain beavers (*Aplodontia rufa*), which are a species of concern that has been found in Bliss State Park. No LOPs, buffer zones, or Pacs are mandated for mountain beavers.

VEGETATION

Background

Existing Vegetation Communities

The project area includes several vegetation communities including Great Basin scrub, Jeffrey pine forest, riparian corridors, seasonal marshes, and wet montane meadows. Other series represented include the Greenleaf manzanita series, the Huckleberry oak series, and the Tobacco brush series.

The Great Basin scrub plant community is dominated by bitterbrush (*Purshia tridentata*) and mountain sagebrush (*Artemisia tridentata* ssp. *vaseyana*) with a variety of forbs and grasses. Common grass species include squirreltail (*Elymus elymoides*), Sandberg bluegrass (*Poa secunda*) and needlegrass (*Achnatherum* spp). Jeffrey pine forest is dominated by Jeffrey pine (*Pinus jeffreyi*), bitterbrush,

mountain big sagebrush, and a variety of forbs and grasses. Lodgepole pine (*Pinus contorta* ssp. *murryana*) and white fir (*Abies concolor*) are also found within this community type.

Dominant understory brush species represented in the Greenleaf manzanita, Huckleberry oak, and the Tobacco brush series include greenleaf manzanita (*Arctostaphylos patula*), huckleberry oak (*Quercus vaccinifolia*) tobaccobrush (*Ceanothus velutinus*), squawcarpet (*Ceanothus prostratus*), whitethorn (*Ceanothus cordualtus*), bittercherry (*Prunus emarginata*), and chinquapin (*Chrysolepis semprvirens*). Overstory species include incense cedar (*Calocedrus decurrens*) and scattered sugar pine (*Pinus lambertiana*).

Stream Environment Zones

The Tahoe Regional Planning Agency defines a stream environment zone (SEZ) as a biological community that derives its characteristics from the presence of surface water or a seasonal high groundwater table. An SEZ is delineated by the presence of drainage ways and floodplains, including adjacent marshes, meadows, and riparian vegetation. SEZs are riparian areas identified by the presence of at least one primary indicator or three secondary indicators.

Primary Indicators are as follows:

- Evidence of surface water flow, including perennial, ephemeral and intermittent streams, but not including rills or human-made channels;
- Primary riparian vegetation;
- Near surface groundwater (less than 20 inches from the surface);
- Lakes or ponds;
- Beach soil; or
- One of the following alluvial soils:
- Elmira coarse sand, wet variant; or
- Marsh.

Secondary Indicators are as follows:

- Designated flood plain;
- Groundwater within 20 to 40 inches of the surface;
- Secondary riparian vegetation; and
- One of the following alluvial soils:
- Loamy alluvial land;
- Celio gravely loamy coarse sand; or
- Gravely alluvial land.

In addition, TRPA has identified SEZ factors and developed definitions that described SEZs. Included in definitions was "Vegetation, such as alders, willows, aspen and lodgepole pine…." Scouler's willow (*Salix scouleriana*), which most likely occurs throughout the project area, is considered to be a facultative wetland species in California. It is often found mixed in with upland plant communities and can tolerate fairly dry conditions yet it has been considered an SEZ indicator species.

The proposed off-street bikeway corridor crosses several creeks and associated SEZs. Numerous other SEZs most likely occur in the project area and are not obvious on existing maps. SEZs may contain habitat for sensitive wildlife species, such as willow flycatchers. Potential SEZs would require verification by a specialist as well as TRPA, further constraining alternative selection.

Jurisdictional Wetlands and Waters of the United States

Jurisdictional wetlands most likely occur within the proposed project corridor. "Waters of the United States" (Waters), of which some are clearly defined on maps, may also require mapping if there are potential impacts.

Jurisdictional wetlands are subject to the provisions of Section 404 of the Clean Water Act. Waters of the United States are identified following definitions provided in the Army Corps of Engineers (ACE) regulation [33 CFR 328.4(a)(b) and (c)]. The limits of jurisdiction in non-tidal waters extend to the ordinary high water mark. Wetland delineation is based on three technical criteria; 1) hydrophytic vegetation, 2) wetland hydrology, and 3) hydric soils. Positive indicators of all three criteria must normally be present in order for the area to be classified as a wetland. Drainages with evident channel widths and high water marks are considered Waters. These include ephemeral drainages.

Delineations of would be required if alternatives cross potential wetlands. Consultation with the ACE would be necessary if construction activities could impact wetlands. In addition, if Section 404 permits are required for wetland fill, the Regional Water Quality Control Board must provide water quality certification under Section 401 of the Clean Water Act, certifying that the discharge related to those federally permitted activities would be in compliance with state standards.

Potential Impacts

A complete list of potentially occurring species in the project area as reported by the California Natural Diversity Database is included as an appendix to this study. Only one species, Tahoe yellow cress (*Rorippa subumbellata*) is currently listed as Endangered in California under the California Endangered Species Act. Special Status Species include the following:

- Plant species listed or proposed for listing or candidates for listing under federal or state Endangered Species Acts
- Species protected under local jurisdictions

- Plant species on List 1 and 2 listed in the 1994 edition of the Inventory of Rare and Endangered Vascular Plants of California
- Plant species considered Species of Special Concern by the United States Fish and Wildlife Service (USFWS) or California Department of Fish and Game (CDFG)
- Plants species by other federal agencies such as the United States Forest Service (USFS)

Nine mapped occurrences of Tahoe yellow cress (TYC) occur within the proposed project. However, not all occurrences have been recently recorded. Several occurrences are in the vicinity of Emerald Bay and Emerald Bay Point and should not be affected by the proposed route, unless by secondary impacts such as increased use of the areas associated with the bike path. Impacts from construction close to populations and/or habitat could include trampling, sedimentation, and other run-off.

Development in SEZ and Wetland Areas

As noted in chapter 2 of this Bikeway Study, the Basin Plan for the Lahontan Region describes Regional Board concerns regarding development in SEZs and floodplains. Specific findings must be made before the Regional Board can grant exemptions to prohibitions against new development or permanent disturbance in SEZs or grant exceptions to the 100-year floodplain discharge prohibitions in cases where the floodplain is not also a SEZ.

According to Regional Board staff, the off-street bikeway alternative does not appear to fit into the category of public outdoor recreation facilities where the project, by its very nature, must be sited in a floodplain or SEZ. Instead, the bikeway projects appear to fit best into the public service facilities category. For public service facilities, an exception to the prohibitions against discharges or threatened discharges for new development or permanent disturbance in SEZs for discharge may be granted if all these findings can be made:

a. The project is necessary for public health, safety, or environmental protection;
b. There is no feasible alternative, including spans, which would avoid or reduce the extent of encroachment;
c. The impacts SEZs are fully mitigated; and
d. SEZ lands are restored in an amount 1.5 times the area of SEZ disturbed or developed by the project.

Similar findings must be made (5.7-7) must be made for exceptions to 100-year floodplain discharge prohibitions, in cases where the floodplain is not also an SEZ. Information on restrictions on new development in excess of the land capability system limits on Class 1a, 1c, 2 or 3 lands can be found in Chapter 5.8-6,7.

Before projects requiring these exemptions could be permitted, it would be up to the project proponent to demonstrate how exemption criteria to these prohibitions are met. If mitigation is required, a written description of the location, nature, and timing for completion of the 1.5:1 compensatory mitigation required for new coverage and disturbance to SEZs. A permit or other

approvals can not be issued until mitigation issues are resolved. To make the findings that "the impacts will be mitigated" (per the findings in the Basin Plan, section 5.7), the restoration mitigation plan must show how on and off-site restoration will mitigate loss of existing SEZ functions and value at the project site. Replacing or improving functions and values on-site is the best mitigation.

Summary

An off-street bike path along the shoreline areas within Emerald Bay and D.L. Bliss State Parks could have significant impacts on sensitive species (e.g. Tahoe yellow cress), SEZs, and jurisdictional wetlands.

GEOLOGY, SOILS, AND EROSION

Background

The study area is underlain primarily by granitic rocks and soil, and rocks derived from granitic rocks due to glaciation. Landsliding and avalanches have previously occurred in the area around Emerald Bay. Recent studies indicate that an earthquake fault zone may run along the Lake's west shore, but the potential for seismic activity is not yet known. The early 1970's natural hazards maps show the corridor area to fall in the low to moderate category related to ground instability and seismic shaking, except in the area around Emerald Bay and the Spring Creek area at the south end of the alignment, where the maps indicate the next level of ground shaking potential.

Potential Impacts

The off-street bikeway corridor would start a few hundred feet to the south of Spring Creek and run northerly, parallel to and to the east of SR-89 for about one half mile. A bridge would be required for the crossing of Spring Creek. If an existing bridge is not used, care must be taken to prevent erosion and sediment transport to the creek during construction of the bridge foundation and supports. The path for this segment of the bike trail would be on recent alluvium and would not cause adverse erosion if reasonable care is taken in preparation of the path base.

At Cascade Road, the bike path alignment would diverge from SR-89 and utilize Cascade Road into the Cascade Properties residential area. From Cascade Road, the alignment would need to extend off-street between existing private residences toward Cascade Creek. The proposed bike path at this location would make a jog to the west for about 300 feet over glacial deposits to an existing bridge crossing Cascade Creek in the housing development along Cascade Creek. The path then follows a northerly direction over glacial outwash and alluvial material for about 5,000 feet to Eagle Point at the entrance to Emerald Bay. The bike pathway constructed over the glacial deposits for the initial 1,500 feet will be cut into a slope requiring temporary measures to prevent transport of sediment during summer storm events and permanent slope protection and drainage control mitigation on all exposed cut and or fill slopes. The next 4,000 feet would be over relatively flat terrain of a mixture of glacial deposits and alluvium. Cuts and fills on the flat terrain probably would not result in adverse erosion during construction of the base for the bikeway pavement.

The next segment of the bike trail follows the entire shoreline of Emerald Bay up to Emerald Point, passing by the State campground on the south side of the bay, Vikingsholm at the west end of the bay and the boating campground on the north shore of the bay. At some locations there is a

relatively narrow beach between the glacial deposits and the bay. The bike path constructed over the glacial deposits would be cut into slopes requiring temporary measures to prevent transport of sediment during summer storm events and permanent slope protection and drainage control mitigation on all exposed cut and/or fill slopes.

The next 1,000 feet segment of the bike trail crosses the west edge of Emerald Point peninsula. This segment of the bike trail would cross over the Quaternary glacial deposits and would require the same construction practices as used around Emerald Bay.

The next northerly two-mile segment follows along the shoreline of Lake Tahoe to Rubicon Point. With the exception of a few reaches of very narrow beach sands or lakebed deposits, the entire reach is over Mesozoic age granitic rocks or weathered granite. These materials are subject to high erosion potential when disturbed or if the existing vegetation is damaged or removed. Any bikeway construction in this area should be constructed on an alignment that would require the least disturbance with little or no cutting and filling or removal of vegetation. Due to the high erosion potential of these materials, it will be necessary to provide temporary measures to prevent transport of sediment during summer storm events and permanent slope protection and drainage control mitigation on all exposed cut and/or fill slopes.

At Rubicon Point the trail alignment turns to a more westerly direction along the base of the hill for about 1,500 feet. The hillside and the slopes consist of granite and weathered granite with Quaternary lake deposits between the base of the slope and Lake Tahoe. If at all possible the trail should be constructed over the lakebed deposits to prevent disturbance of the highly erodible granite and weathered granite along the base of and on the hillside. If the path for this segment of the bike trail is on the lakebed deposits it will not cause adverse erosion if reasonable care is taken in preparation of the path base. If it is necessary to move the trail up on to the granitic materials, the design adopted must provide for the least amount of disturbance with little or no cutting and filling or removal of vegetation to minimize the amount of erosion and transport of sediment to the lake.

The next northwesterly trending 4,000 feet segment of the bike trail traverses over the Quaternary age lake deposits to the west of the Paradise Flat recreational homes development passing on to glacial deposits as the trail approaches SR-89. This portion of the bike trail on the lakebed deposits would not cause adverse erosion if reasonable care is taken in preparation of the path base.

As the alignment of the bike trail merges with the east shoulder of SR-89 it passes on to glacial deposits for about 3,000 feet and then on to a mixture of highly erodible granite and weathered granite and glacial moraine deposits for the next 2,000 feet. The design for the segment of the trail on granitic materials must provide for the least amount of disturbance with little or no cutting and filling or removal of vegetation to minimize the amount of erosion and transport of sediment to the lake.

To the north of Rubicon Properties development the alignment follows the east shoulder of SR-89 in a north/northeasterly direction along the approximate contact between glacial deposits to the west and Quaternary age lake deposits to the east for about 5,000 feet to the headlands to the south of Meeks Bay. The portions of the bike trail on the lakebed deposits will not cause adverse erosion if reasonable care is taken in preparation of the path base.

The proposed bike trail passes over the granitic headlands to the south of Meeks Bay in a north/northwesterly direction about 400 feet to the west of the lakeshore. The entire reach is over Mesozoic age granitic rocks or weathered granite. These materials are subject to high erosion potential when disturbed or if the existing vegetation is damaged or removed. If at all possible the trail should be constructed on an alignment that would require the least disturbance with little or no cutting and filling or removal of vegetation. As the trail drops off of the headlands it turns in a more westerly direction and passes on to Quaternary age lakebed deposits and remains on them to the termination at Meeks Bay Resort and Marina. This segment of the bike trail is on the lakebed deposits and should not cause adverse erosion if reasonable care is taken in preparation of the path base.

Summary

Due to the high erosion potential of these materials, it will be necessary to provide temporary measures to prevent transport of sediment during summer storm events and permanent slope protection and drainage control mitigation on all exposed cut and/or fill slopes. All disturbed area must be revegetated to prevent erosion.

Extensive studies have been made in the Lake Tahoe area on erosion and sediment control technology showing best management practices for construction on the various geologic materials found in the area. They are contained in a publication by the entitled U. S. Environmental Protection Agency in " Demonstration of Erosion and Sediment Control Technology, Lake Tahoe Region of California" EPAA-600/2-78-208. The construction practices outlined in this document would reduce the impact of the land disturbances to within reasonable limits during and after the installation of the bike trail. Under all options discussed above, facilities will also be required to control and dispose of runoff year round from the paved surfaces to prevent erosion and transport of sediment to all streams and to the lake.

CULTURAL RESOURCES

Background

Known Heritage Resources

Heritage sites with or adjacent to the project area include: P-9-52-H (Vikingsholm Boat Houses), P-9-53-H (Vikingsholm Power House) and P-9-1269 (1930s skid trails for tractor yarding of logs); CA-Eld-190-H (historic board scatter and old road trace); CA-Eld-729 (prehistoric bedrock mortar at Eagle Point); Meeks Bay prehistoric bedrock mortar; CA-Eld-1055 (Meadow Park historic complex, Lindström 1999, NCIC file no. 3308); Emerald Bay Resort; Isolated Finds #1-3 (Lindström 1990); Dexter (1995) isolates #1 (two obsidian waster flakes) and #2 (small milled timber horse bridge); Meeks Bay Resort; FS #05-19-674 (Vikingsholm Dump); FS #05-19-675 (two piles of split wood, Maher 1995); Banka (1997) sites #1 (cedar fence posts),# 2 (road grade or skid trail), #5 (road grade), #7 (rock wall), #10 (historic building), USFS #05-19-387 (historic cabin depression), and USFS #05-19-673 (prehistoric lithic scatter).

According to the Office of Historic Preservation (OHP) Historic Property Directory (HPD), two National Register of Historic Places districts are listed within the project area: (1) Vikingsholm (NR-17), including 11 contributing properties (water tanks, warehouse, main house, teahouse, duplex,

road, boat bay, gardener's cottage, rock work and trail, and transformer building); and (2) the Newhall Estate. The Newhall Estate Entrance Pillars are also designated as a Point of Historical Interest (PHI-Eld-009). Vikingsholm is shown as map point #8 on the Tahoe Regional Planning Agency (TRPA) historical sites map (1984).

In his interviews with Washoe elders, ethnographer Stanley Freed (1966) recorded several important Washoe camps within the project area. In the vicinity of Cascade Creek he noted a popular fish camp, dEyEli'bukhwOnhu (Freed #7) and a locale where red clay was mined near the lake and used as body decoration and paint for bows and arrows. These sites are shown on a TRPA map (1984) as a Washoe "special function" and fish camp. Along Rubicon Bay and near Paradise Flat, Freed recorded wO'thanamIna as a "resting spot" and not a "full-fledged camping site (Freed #29). This locale is also noted as a "special function" site on the TRPA historical map (1984). A fish camp magaulu'wO'tha, was located along a small stream about two miles south of Meeks Bay (Freed #8). The locale is designated as a "fish camp" on the TRPA map (1984). At Meeks Bay Freed noted ma'yalawO'tha, a midsummer camping spot where fish, berries and seeds were collected (Freed #9). The camp was below the SR-89 Bridge. This camping spot was also recorded by d'Azevedo (1956) as ma'yala wa'ta, well known to Washoe as a mineral spring. The TRPA map (1984) shows this locale as a "fish camp", with a "special function" site also located about one-half mile to the south. The Washoe referred to an area in Emerald Bay as silat'as, meaning "place of the tiger lilies" (Lilium parvum), which they harvested and ate both raw and roasted (Nesbitt et al. 1990). Historic photographs of a Washoe camp at the mouth of Emerald Bay appear in a number of popular publications. Two photographs (Nevada Historical Society n.d. and Seaver Center n.d in Nesbitt et al. 1990.) show a bark structure and Washoe women in front of the camp. Washoe are known to have camped on Paradise Flat on Rubicon Bay, with a large camp being reported near Three Ring Road (Lindström 1998).

On his low-water Lake Tahoe shoreline survey for the USFS-LTBMU, Blanchard (1988) noted a number of lakeshore sites. On the Meeks Bay 7.5' quadrangle, he noted prehistoric lithic scatters (#14, 19, 24), anomalous stone piles, linear arrangements and jetties (#17, 20), boat launch "way" tracks (#18), pier pilings (#21, 22, 25, 26, 27, 28, 29), and wire rope (#30). On the Emerald Bay 7.5' quadrangle, he observed wire rope/cable (#1, 3, 6, 11), prehistoric lithic scatters (#2, 27), anomalous rock alignments (#7, 10), historic artifacts (#8, 15, 18, 19), cobblestone wall work (#9), pier pilings (#12, 13), way tracks (#24), and possible Native American milling features (#3, 20, 21, 22, 25, 26).

In 1988, Woodward (1991) also surveyed the exposed shorelines of Emerald Bay State Park between the 6229 and 6222-foot elevations. Findings include prehistoric bedrock milling features and portions of the Vikingsholm historic complex. Woodward's study was supplemental to a historical, ethnographic and archaeological inventory report on Emerald Bay State Park by Nesbitt, Evans, and Kelly (1990), wherein features of the Emerald Bay Resort were mapped and recorded.

Green (in progress) recently conducted a survey of the Rubicon Trail along the north side of Emerald Bay and north through D.L. Bliss State Park. A number of wall/gate/fence features and historic trash scatters were recorded. Many features are associated with Civilian Conservation Corps (CCC) trail construction during the 1930s.